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Evaluation of the Level of Students with Visual Impairments in Turkey in Terms of the Concepts of Mobility Prerequisites (Body Plane/Traffic)

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ABSTRACT

Purpose: Visually impaired people are weak in terms of their learning words and concepts by hearing them and their experience of the world with their bodies. In addition to developing a standardized assessment tool in the Development of Orientation and Mobility Skill Assessment Tool (OMSAT/YOBDA) for Visually Impaired Students Project, supported by TUBITAK, the purpose of this study was to determine to what extent visually impaired students throughout the country had the prerequisite concepts (body plane/traffic) they needed in order to use their orientation and mobility skills. **Research Methods**: The study is a descriptive-level survey study which aims to present the existing situation. A total of 402 visually impaired students from 16 schools for the visually impaired (n=320) and among the inclusion students in the immediate surroundings (n=82) studying during the 2015–2016 academic year participated in our research. The implementers personally worked with the visually impaired students and made markings for the OMSAT. The data were entered in the system. **Findings:** At the end of the study, it was concluded that the levels of mastery of the traffic concepts required for orientation and mobility were very low among students studying at schools for the visually impaired as well as in mainstream contexts, and that their performance levels regarding concepts related to body planes were relatively higher. **Implications for Research and Practice:** It is assumed that the research results will form a basis for preparing IEPs, improving teaching programs, and conducting other field research on this subject.

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Introduction

There are three basic restrictions in the experiences of visually impaired students. The first restriction is the control over the environment in one's relationship with it. The second restriction is mobility. The third restriction is the limitation of concepts and their varieties. Visually impaired students' performance of orientation and mobility skills depends on whether they have mastered these concepts. Therefore, it is vital to determine their performance in regard to concepts related to orientation and mobility skills.

Concepts are one of the most important structures that help people interpret the world and integrate with the environment during their lifetime. Concepts, in addition to their broad meaning, express the words or phrases that people use in order to interpret themselves and their environment (Koksal, 2006). Concept development includes the views of the individual regarding himself/herself, other people, objects and the environment. People use thousands of concepts to distinguish and to communicate during the day (Jonassen, 2006). Concept development is an infinite process that lasts a lifetime, and it is different for each child based on physical and environmental factors.

Audio-visual clues are very important as the source of stimuli for the concept development of all children. Sighted children are interested in observing, researching and discovering their environment (Ceylan, Gozun Kahraman & Ulker, 2015). Therefore, it is possible for them to gain various concepts as a result of their observations and research. Concepts begin to be created through the senses. While the senses are independent from each other at the beginning (infancy), they start to make sense by being organized, correlated with one another and compared to previous experiences (Sucuoglu, Buyukozturk & Unsal, 2008). Eyesight has an integrative role that gains a broad meaning to different information separately provided by each sense (Harley, Truan & Sanford, 1997). Hence, eyesight, which involves various elements and functions, is a sense that plays an important role in cognitive, emotional and motor development (Aki & Sag, 2016). Visual impairment introduces many developmental problems.

Visually impaired children are developmentally disadvantaged as they have to rely on their senses other than eyesight. The lack of visual stimulus negatively affects various (physical, cognitive and language) developmental areas in children (Tuncer, 2004). Usually, there may be delays in their concept development (Budd, 1998). Concept development is an important tool for the overall development of sighted or visually impaired children in addition to efficient teaching and learning (Olayi & Ewa, 2014). Visually impaired children need to learn how to integrate their sensory impressions by touching, smelling, tasting and using their remaining eyesight (Harley et al., 1997). Early concept development in visually impaired children underlies their subsequent developments.

Visually impaired people are low in terms of learning words and concepts by hearing them and experiencing the world with their bodies. The hypothesis that visually impaired children are incapable of concept development is supported by a

few older studies by Hill and Balsch (1980). In these studies, Garry and Accarelli (1960) stated that the visually impaired had difficulty in understanding and using spatial concepts, Hapeman (1967) stated that they had less tangible data regarding their surroundings, Kephart, Kephart and Schwarz (1974) stated that children comprehended the concepts in bits as a result of their way of processing the data regarding themselves and their environment, and Hartlage (1968) stated that there was a significant difference between the performances of blind and sighted children regarding questions about spatial concepts (Hill & Blasch, 1980). Correct and functional concept development is an important milestone for mobility.

Orientation and mobility without eyesight require certain basic concepts to be learned. Basic concepts related to orientation and mobility are physical awareness that includes body diagram, body concept, body image, the body plane and its sections, right-left sides, directions, spatial position, shape, size, and environmental (corner, street, etc.) concepts (Pogrund et al., 1998). Other concepts are needed for distance and time, following a sequence of fixed objects, moving against the moving objects, and efficient mobility (Olayi & Ewa, 2014). Information regarding the environment and spatial concepts are the main factor behind orientation and mobility for visually impaired people (Budd & LaGrow, 2000). Learning the concepts is required for understanding the structure of the objects and using them as a clue or cue. For example, a student who understands the concept of a door and has counting skills will be able to find the door of the cafeteria, which is the fifth one, by counting the doors.

One of the important prerequisite concepts for a visually impaired person to have mobility is the bodily concept. The concept of body image includes information about the body parts, the relative positions of the body and how much space it takes up. Body image makes it easier for the child to perceive the body plane and to understand simple spatial concepts (opposite, next to, between). If the student has an inadequate body image, he/she will have problems with understanding the world surrounding him/her (Altunay, 2003). After mastering the concept of body image, it is necessary to develop a functional use of the bodily right/left concepts. A visually impaired child cannot see how things around him/her move when he/she moves or turns (Ozyurek, 1995). It is necessary to help the student learn the relativity of the positions, in other words, how the things change their positions when he/she moves so that the child can utilize his/her surroundings in a safe and fast way.

It is not enough for visually impaired people to only learn the bodily concepts in order to have an efficient orientation and mobility. Environmental concepts like traffic concepts are vital to safely utilize the surroundings. When people move, they may encounter risky situations, such as crossing the street, where the possibility of death or injury is high. Crossing the street is easily learned through the visual systems. In visual impairment, this becomes difficult (Geruschat, Hassan, Turano, Quigley & Congdon, 2006). It is reported that the number of accidents in Turkey between 2010 and 2012 is 3,631,763 (Trafik kazalari ve sonuclari/Traffic accidents and their consequences, n.d.). There is no data regarding the accidents that visually impaired people have. People usually feel that they are not safe in traffic and avoid

the situations that they sense as dangerous. These results regarding limited accessibility are not only valid for the traffic environment, but also for other environments outside the home (Magnusson & Rassmus-Grohn, 2005). This leads to the dependency of people on others when moving around.

Visually impaired people have to be in traffic without depending on other people during their lifetime. That he/she can go to school and work, visit his/her neighbors or friends and engage in social activities depends on whether he/she has the traffic concepts along the route. Traffic concepts are crossroads, pavement, pedestrian crossing, subway, overpass, traffic light, road, etc. In order to include people with reduced mobility in the traffic system, it is necessary to inform users about all the facilities surrounding them and to provide accessibility (Periša, Peraković & Šarić, 2014). It is crucial for visually impaired people to have these traffic concepts at first, so that they can get this information and have access. In a study by Wright (2010), the participants were evaluated in terms of whether they had the travel concepts related to crossing the street, such as right, left and position concepts. It was observed that verbal clues and guided applications for crossing the street were effective in visually impaired children. There are studies conducted for developing environmental concepts in visually impaired people and maintaining their safety in traffic. In a study by Budd and LaGrow (2000), a three-dimensional interactive model was used to teach environmental concepts to four visually impaired children aged between 7 and 11. The model was considered efficient in teaching these concepts. For visually impaired pedestrians, crossing the street in uncontrolled traffic is a very significant problem. Visually impaired pedestrians have to use their sense of hearing in order to identify the spacings and approaching vehicles. In a study conducted by Emerson and Sauerburger (2008) on 17 visually impaired females and six visually impaired males aged between 24 and 67, their performance of sensing the approaching vehicles in uncontrolled traffic was evaluated. In the interviews conducted by Altunay Arslantekin and Ekinci (2014) on four visually impaired undergraduates in our country, it was stated that they did not have any traffic education. One of the students said, "We were told to use the curbsides, not to walk on the road, and to keep our walking stick in contact with the curbside all the time; we were not provided with applied training in traffic lights." Furthermore, they stated that they were not provided with any training regarding the encountered objects/concepts. It is observed that systematic activities for teaching traffic concepts are not available in our country.

A structured presentation is required in order to help visually impaired people properly develop these concepts. As disabled students have problems with gaining some concepts through their observations and experiences, the teaching of concepts has become an important element of the special education curriculum (Prater, 1993). In the literature, there are various scientifically proven studies on concept teaching in Turkey. In Turkey, these studies for mentally handicapped students mostly cover the staggered methods of Merill and Tennyson as well as the natural language method of Gagné. The researches that compare the teaching of color and shape concepts to mentally retarded students through the Gagné model of natural language (Kircaali-

Iftar, Birkan & Uysal, 1998) as well as the efficiency of the Gagné model and the Merrill and Tennyson models (Guzel Ozmen & Unal, 2008) can serve as examples of these studies. The studies conducted with visually impaired students on concept evaluation and teaching are quite few in number. It was discovered by Horzum (2016) that visually impaired students often used the concept images and misused the triangle definitions, and in a research by Altunay Arslantekin and Sener Akin (2017), it was discovered that teaching based on the Direct Instruction Model was effective in helping students gain and maintain their knowledge of geometric figures.

Mobility experts must help visually impaired students master these concepts as well as sighted people do. Before proceeding with the teaching of the concepts, evaluations must be conducted to reveal the concept development levels of visually impaired individuals (Hill & Blasch, 1980). In Turkey, there are no countrywide data that present the conceptual performance levels of students and that can be used in scientific publications. Assessing the existing concept levels is crucial in order to develop supportive activities and programs. The purpose of this study is to determine the level of the prerequisite concepts (body plane and traffic) that visually impaired students throughout the country need to master in order to utilize their orientation and mobility skills. The study is the first and most comprehensive research on this subject conducted with tactile visually impaired students.

Method

The "Development of Orientation and Mobility Skill Assessment Tool (OMSAT) for Visually Impaired Students" Project was conducted between 2014 and 2016. The project team consisted of one project coordinator, one special education instructor, one ergotherapy instructor, and one instructor from an assessment and evaluation department. Furthermore, five research assistants and two teachers (graduate students) for the visually impaired worked on the project.

During the process of developing the assessment tool, the purpose of the scale, the properties to be surveyed and the items of the tool were written. An item pool consisting of 84 people including non-governmental organization members, teachers and academics was formed. The relevance of the items for surveying purpose and their comprehensibility in terms of language were analyzed by three education and three assessment and evaluation specialists, one project coordinator, three researchers, one special education research assistant and one assessment and evaluation research assistant. In accordance with the pre-pilot study, some changes were made to the assessment tool, and a pilot study was conducted. Validity and reliability analyses were conducted based on the norm sample data in the subscales of orientation and mobility skills of the assessment tool. The purpose of the prerequisite skills and concepts sections of the OMSAT is to determine the existing performance levels of students. Scoring total points in these sections is not the aim.

Research Design

The purpose of the study is to determine the performance levels of visually impaired students for performing body plane and traffic concepts. The study is a

descriptive-level survey that aims to present the existing situation. Studies that aim to collect data in order to determine the specific features of a group are called survey studies (Buyukozturk, Kilic Cakmak, Aygun, Karadeniz & Demirel, 2012).

Research Sample

A total of 402 visually impaired students from 16 schools for the visually impaired (n=320) and among the inclusion students in the immediate surroundings (n=82) studying during the 2015–2016 academic year participated in our research. Of these students, 183 were female and 219 were male. The required permissions for the students to participate in the research were obtained from the Ministry of National Education. Moreover, the school principals were informed about the research, and their written approval was obtained. The data were collected by the research assistant in the special education department. The sections of the OMSAT where body plane concepts and traffic concepts were evaluated were applied in an empty room.

Research Instrument and Procedure

The OMSAT was developed with the "Development of Orientation and Mobility Skill Assessment Tool for Visually Impaired Students" Project no. 113K557 supported by TUBITAK (Scientific and Technological Research Council of Turkey). The OMSAT is a standard assessment tool that can objectively evaluate the performance levels of students in terms of their orientation and mobility skills. At the beginning of the OMSAT, there is a student data sheet. The first section consists of questions that aim to identify the visually impaired students' past experiences regarding their orientation and mobility skills. In the second section, the prerequisite skills are defined, and in the third section, the prerequisite concepts are defined. In the fourth section, the basic mobility skills (following the wall/object by hand, guided walking skills and walking stick skills) are included. The fifth section consists of items related to orientation skills. The sixth section is related to mobility on routes. Finally, the seventh section consists of items regarding the students' use of mobility skills in interior/exterior arrangements.

There is an explanation about implementation at the beginning of the third section. In that section, there are columns for behaviors/instructions, a "+/-" area for marking and a "remarks" area for descriptions of the concept performance of the students. Furthermore, as different environments were used in the study, the environment was specified next to the remarks column for the ease of implementation.

The implementers conducted a one-to-one study according to the name list of the tactile students. The instructions in the OMSAT were provided, and markings were performed. The steps properly carried out by the students were marked as "+", and the steps incorrectly carried out or not carried out by the students were marked as "-" under the +/- column opposite the respective step of the assessment tool. The true/false answers of the student were reacted neutrally.

Validity and Reliability

For the validity, the assessment tool's (instrument's) relevance to the study's purpose was reviewed by three experts. Application booklets were prepared so that the assessment tool could be used in the same way by all implementers. Project coordinator provided the implementers with training. In order to collect the interrater reliability data (20% of the students), two research assistants marked the OMSET independently. The interrater reliability data were found to be 100%.

Data Analysis

In the research, the assessments regarding the tactile students' mastery of the prerequisite (body plane and traffic) concepts were reviewed. Data was analyzed with SPSS and descriptive statistics regarding prerequisite concepts of students were determined. After the data input of the research was completed, the assessments tools were secured in a cabinet in the room of the project coordinator.

Results

In the research, the visually impaired students' percentage of implementing body plane and traffic concepts was reviewed. Body plane concepts were approached in three sections as body planes, position relationships based on the body and relativity of the positions. The students' percentage of implementing body plane concepts is given in Table 1.

Table 1
The Frequency and Percentage Distribution of Implementing Body Plane Concepts

Body Plane Concepts	***Yes***		***No***	
Body Planes (Sides, Front, Back)	***f***	***%***	***f***	***%***
1. Showing right side	374	93.0	28	7.0
2. Showing left side	375	93.3	27	6.7
3. Showing front	390	97.0	12	3.0
4. Showing back	391	97.3	11	2.7
Position Relationships Based on Body	***f***	***%***	***f***	***%***
5. Telling the object to the front	379	94.3	23	5.7
6. Telling the object on the right	354	88.1	48	11.9
7. Telling the object on the left	355	88.3	47	11.7
8. Telling the object to the back	373	92.8	29	7.2
Relativity of the Positions	***f***	***%***	***f***	***%***
9. Telling the object to the front when the position is changed	307	76.4	95	23.6
10. Telling the object on the right when the position is changed	287	71.4	115	28.6
11. Telling the object on the left when the position is changed	274	68.2	128	31.8
12. Telling the object to the back when the position is changed	291	72.4	111	27.6

Looking at the percentage of implemented body plane concepts in Table 1, it is observed that the rate varies between 93% and 97.3%. It is seen that the students have mostly mastered the right, left, front, and back concepts. Looking at the data related to the position relationships based on the body, it is observed that it varies between 88.1% and 94.3%. It can be stated that their level of telling the objects to the front, on the right, on the left and to the back is high. It is seen that their percentage of implementation regarding the relativity of the positions varies between 68.2% and 76.4%. As a result of the findings, it is observed that although the visually impaired students have mastered the concepts of body surface and position relationships among body plane concepts, their level of mastery regarding the relativity of positions (marking the object to the front, on the right, on the left, to the back when the position changes) is relatively lower.

The levels of the students regarding traffic concepts consist of three steps. These include marking the crossroad and the road and a question about where to cross safely. The visually impaired students' frequency and percentage distribution of implementing the traffic concepts is given in Table 2.

Table 2

The Frequency and Percentage Distribution of Marking the Traffic Concepts

	Yes		***No***	
Traffic Concepts	***f***	**%**	***f***	**%**
1. Marking the crossroad on the model	71	17.7	331	82.3
2. Marking the one-way/two-way road	62	15.4	340	84.6
3. Telling where to walk across the street safely in traffic (pedestrian crossing, overpass, subway)	143	35.6	259	64.4

As is seen in Table 2, looking at the students' percentage of marking the traffic concepts, it is observed that their success varies between 15.4% and 35.6%. While 17.7% of the students marked the crossroad, 62% marked the one-way/two-way road and 35.6% of them identified where to walk across the street safely in traffic. Looking at the data, it is observed that the visually impaired students' percentage of marking the traffic concepts that they need to use in their daily life and to walk across the road safely is very low.

Discussion and Conclusion

Concept development is an important tool for overall development and efficient teaching in students. A sighted person directly collects sensory information about a distant object and processes this information rapidly (Hill & Blasch, 1980). Visually impaired people cannot collect information about the objects that they cannot touch; therefore, they may have problems with concepts.

Social environment restricts the occurrence of various concepts in visually impaired children. These restrictions may arise from the excessive protective attitude of the family and teacher. This attitude will prevent students from obtaining new concepts and experiencing other stimuli (Olayi & Ewa, 2014). However, the more concepts the students know, the easier and quicker they can learn other new concepts (Pendarvis & Howley, 1988). Inadequate concept development in children causes them to have difficulties in interacting and learning what is going on in their immediate surroundings.

A factor that helps visually impaired people utilize their surroundings efficiently is concepts. A student without concepts will not be able to identify the position of things and will have problems moving along a described road and identifying his/her position when changing direction. In a preliminary study by Wright (2010), it was determined whether students had mastered the concepts of walking across the street and traveling. As traffic concepts such as crossroad, one-way/two-way road, etc. are visual, the lack of such activities will affect the students' interpretation and use of traffic.

Teachers must have the ability to understand how visual impairment affects the development of concepts and how problems arise. Hill and Blasch (1980) and Zebehazy, Zimmerman and Fox (2005) emphasize that the mobility expert needs to know the assessment tools and determine the person's level of concept development for the purpose of beginning to teach at a suitable level. In the study by Altunay Arslantekin (2015) that reviewed students' mobility skills, it was determined that the students did not have some environmental concepts. The studies support our research results.

In Turkey, there are no countrywide data that present the conceptual performance levels of students and that can be used in scientific publications. The OMSAT is the first study to present the existing performance of visually impaired students in terms of concepts. Teaching methods that will contribute to the development of the prerequisite concepts, which are crucial for the orientation and mobility of visually impaired students, are needed. In the curriculum, there are some objectives related to academic skills, but there are not any objectives related to the teaching of such concepts. On the other hand, the concepts that need to be taught were included in the Orientation and Mobility Teachers' National Occupational Standard published in the official gazette (Gorme Engelliler Yonelim ve Bagimsiz Hareket Egitmeni (Seviye 5) Ulusal Meslek Standardi/National Occupational Standard of the Orientation and Mobility Teachers' for the Visually Impaired [Level 5], 2013). The project coordinator contacted the Ministry of National Education and informed the heads of the department of MNE about the existing performance levels of the studied visually impaired students. Preparatory work for a program that supports the mobility of students will start with the partnership between Gazi University and MNE, and concept teaching study will be included as well.

Recommendations

The research results will constitute a basis for various studies to be conducted. The assessment tool within the study can be used for the Individualized Education Plans (IEP) of the students in mainstream classrooms, at the schools for the visually impaired, and at Counseling and Research Centers (CRC). The research was limited to primary school and secondary school students as well as to prerequisite concepts of mobility. In future research, assessment tools that will measure the preschoolers', high school students' and undergraduates' mastery of concepts can be developed, and their performance levels can be determined. Especially when visually impaired people get older, they need to use more concepts to safely move around. After determining the students' performance levels in the concepts, studies on the efficiency of teaching methods addressing these concepts can be conducted.

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Türkiye'deki Görme Engelli Öğrencilerin Bağımsız Hareket Önkoşul Kavramlarındaki (Beden Düzlemi/Trafik) Düzeylerinin Değerlendirilmesi

Atıf:

Altunay Arslantekin, B. (2017). Evaluation of the level of the visual ımpaired students in Turkey in terms of the concepts of mobility prerequisite (body plane/traffic). *Eurasian Journal of Educational Research*, 67, 71-85 http://dx.doi.org/10.14689/ejer.2017.67.5

Özet

Problem Durumu: Kavramlar, insanların yaşamları boyunca dünyayı anlamlandırabilmesini ve çevresiyle bütünleşmesini sağlayan en önemli yapılardandır. İnsanlar gün içinde kavramların binlercesini ayırt etme ve iletişimde kullanır (Jonassen, 2006). Kavram gelişimi, yaşam boyunca devam eden sonsuz bir süreçtir ve fiziksel, çevresel faktörlere bağlı olarak her çocukta farklı şekilde gelişir. Görsel uyarıcı yokluğu, çocukların çeşitli gelişim alanlarını (bedensel, bilişsel ve dil gelişimi) olumsuz yönde etkilediği için (Tuncer, 2004), görme engelli çocukların kavram gelişiminde genellikle gecikmeler yaşanabilir (Budd, 1998). Görme yetersizliği olan çocukların kavram gelişiminde problem yaşadığı, Hill ve Balsch tarafından (1980) belirtilen çalışmalarla da desteklenmektedir.

Kavramlar, yönelim ve bağımsız hareket için son derece önemli kilometre taşlarıdır. Görme yetersizliği olan kişilerin yönelim ve bağımsız hareketle ilişkili, sahip olması gereken temel kavramlar; beden şeması, beden kavramı ve beden imajını içeren bedensel farkındalık, beden düzlemi ve bölümleri, sağ-sol taraflar (yanlar), yönler, uzaysal (pozisyon, şekil, büyüklük vb.) ve çevresel (köşe, cadde vb.) kavramlardır (Pogrund ve diğ., 1998). Beden imgesi kavramı; beden bölümleri, bedenin göreceli pozisyonları ve ne kadar yer kapladığına yönelik bilgileri içermektedir. Beden imgesi, çocuğun vücut düzlemini algılamasını, basit uzaysal kavramları (karşısında, yanında, arasında) anlamasını kolaylaştırmaktadır. Öğrenci yetersiz bir beden imgesine sahipse, kendi çevresini oluşturan dünyayı anlamakta güçlük yaşayacaktır (Altunay, 2003). Beden imgesi kavramından sonra, bedeniyle gerçekleştireceği sağ/sol kavramlarının fonksiyonel kullanımını geliştirmek gerekmektedir. Görme yetersizliği olan çocuk çevresindeki eşyaların, kendisi hareket ettiği ya da döndüğü zaman nasıl yer değiştirdiğini göremez (Özyürek, 1995). Çevresindeki uyaranları güvenli ve hızlı şekilde kullanabilmesi için pozisyonların göreceliliği kavramının öğrenciye kazandırılması son derece önemlidir.

Trafik kavramları gibi çevresel kavramlar da, çevrenin güvenli şekilde kullanılabilmesinde önemli bir rol oynar. Görme yetersizliği olan kişiler hareket ederken cadde geçme gibi ölüm ya da yaralanma ihtimalinin yüksek olduğu riskli durumlarla karşılaşabilir. Cadde geçme bilgisi en çok görsel sistemler yoluyla kolayca elde edilir. Görme yetersizliği olduğu zaman güçlükler artar (Geruschat,

Hassan, Turano, Quigley ve Congdon, 2006). Bu nedenle trafik kavramlarının öğretilmesi ve güvenli geçiş için trafikte uygulamaların yapılması son derece önemlidir. Fakat Ülkemizde Altunay Arslantekin ve Ekinci tarafından (2014) çalışmada, görme yetersizliği olan üniversite öğrencilerinin öğrenim hayatları boyunca trafik kavramları ve trafiğin kullanımına yönelik öğretim yapılmadığı belirlenmiştir.

Ülkemizde yönelim ve bağımsız hareket için öğretilmesi gereken önkoşul kavramlarla ilgili öğrencilerin performans düzeylerini ortaya koyan herhangi bir çalışma bulunmamaktadır. Araştırmayla, öğrencilerin var olan kavram düzeylerinin ortaya koyulmasının, bu kavramlara yönelik öğretim uygulamalarının gerçekleştirilmesini sağlayabileceği düşünülmektedir.

Araştırmanın Amacı: TÜBİTAK tarafından desteklenen, "Görme Engelli Öğrenciler İçin Yönelim ve Bağımsız Hareket Becerileri Değerlendirme Aracının Geliştirilmesi Projesi'nde (YÖBDA)" standardize edilmiş değerlendirme aracı geliştirilmesi sürecinde, Türkiye'deki görme yetersizliğinden etkilenmiş öğrencilerin yönelim ve bağımsız hareket becerilerini kullanabilmeleri için sahip olmaları gereken ön koşul kavramlara (beden düzlemi ve trafik kavramları) ne ölçüde sahip olduklarının da belirlenmesi amaçlanmıştır.

Araştırmanın Yöntemi: Araştırmanın örneklemini, 2015-2016 öğretim yılında öğrenim gören, toplam 16 görme engelliler okulu (n=320) ve yakın bölgelerdeki kaynaştırma öğrencilerinden (n= 82), toplam 402 dokunsal öğrenci oluşturmuştur. Bu öğrencilerin 183'ü kız, 219'ü erkektir. Öğrencilerin araştırmaya katılmaları için gereken izinler, Milli Eğitim Bakanlığı'ndan alınmıştır. Ayrıca okul müdürleri araştırma hakkında bilgilendirilmiş ve yazılı onayları alınmıştır. Çalışma, var olan durumunu ortaya koymaya çalışan betimsel düzeyde tarama çalışmasıdır. Uygulamacılar, dokunsal öğrenci isim listesine göre, birebir olarak çalışma yapmıştır. YÖBDA'daki yönergeler verilmiş ve işaretlemeler yapılmıştır. Öğrencilerin uygun şekilde gerçekleştirdiği basamaklar, değerlendirme aracının ilgili basamağının karşısındaki, +/- sütununun altına "+", öğrencinin uygun gerçekleştiremediği ya da hatalı yaptığı basamaklar, "-" olarak işaretlenmiştir. Öğrencinin doğru/yanlış tepkilerine nötr kalınmıştır. Araştırmada dokunsal olan öğrencilerin ön koşul kavramları (beden düzlemi ve trafik kavramları) gerçekleştirmelerine yönelik değerlendirmeler incelenmiştir. Çalışmadan elde edilen sonuçların frekans ve yüzdeleri belirlenmiştir. Değerlendirme aracı uygulanmadan önce, üç uzman tarafından aracın amaca uygunluğu değerlendirilmiştir. Değerlendirme aracının bütün uygulamacılar tarafından güvenilir şekilde uygulanabilmesi için, uygulama kitapçıkları hazırlanmış ve Proje koordinatörü tarafından bursiyerlere eğitim verilmiştir. Değerlendirmeciler arası güvenirlik verilerinin toplanması için, iki araştırma görevlisi, öğrencilerin %20'si için YÖBDA'yı bağımsız olarak işaretlemiştir. Değerlendirmeciler arası güvenirlik verileri %100 olarak bulunmuştur.

Araştırmanın Bulguları: Araştırmada görme yetersizliği olan öğrencilerin beden düzlemiyle ilişkili ve trafik kavramlarını gerçekleştirme yüzdeleri incelenmiştir. Beden yüzeyleriyle ilgili kavramları gerçekleştirme yüzdeleri incelendiğinde, %93 ile

%97.3 arasında değiştiği görülmektedir. Öğrencilerin, sağ, sol, ön, arka kavramlarına büyük ölçüde sahip oldukları görülmektedir. Bedenine göre pozisyon ilişkilerine yönelik veriler incelendiğinde, %88.1 ile %94.3 arasında değiştiği görülmektedir. Önünde, sağında, solunda, arkasında olan nesneleri söyleme düzeylerinin yüksek olduğu söylenebilir. Pozisyonların göreceliliği ile ilgili olarak gerçekleştirme yüzdelerinin ise, %68.2 ile %76.4 arasında olduğu görülmektedir. Elde edilen bulgular sonucunda, görme yetersizliği olan öğrencilerin beden düzlemiyle ilgili kavramlardan, beden yüzeyi ve pozisyon ilişkilerine yönelik kavramlara sahipken, pozisyonların göreceliliği (yönü değiştirildiğinde önünde-sağında-solunda-arkasında olan nesneyi etiketleme) düzeylerinin görece daha düşük olduğu görülmektedir. Öğrencilerin trafik kavramlarını etiketleme yüzdeleri incelendiğinde, %15.4 ile %35.6 arasında değiştiği görülmektedir. Öğrencilerden %17.7'si kavşağı etiketlerken, %62'si tek yönlü-çift yönlü yolu etiketlemiş, %35.6'sı ise trafikte güvenli şekilde karşıdan karşıya geçebilmek için nereden geçmesi gerektiğini söylemiştir. Veriler incelendiğinde, görme yetersizliği olan öğrencilerin karşıdan karşıya geçerken güvenli şekilde geçebilmesi için sahip olması gereken trafik kavramlarını etiketleme yüzdelerinin oldukça düşük olduğu görülmektedir.

Araştırmanın Sonuçları ve Önerileri: Ülkemizde öğrencilerin yönelim ve bağımsız hareketle ilgili kavramlarla ilgili performans düzeylerini ortaya koyan, Türkiye çapında uygulanmış ve bilimsel yayınlarda kullanılabilecek herhangi bir veri bulunmamaktadır. Araştırma, dokunsal görme engelli öğrencilerle gerçekleştirilen, bu konudaki ilk ve en geniş kapsamlı çalışmadır. Araştırma sonucunda, görme engelliler okullarında ve kaynaştırmada öğrenim gören öğrencilerin yönelim ve bağımsız hareket için gerekli olduğu belirlenen trafik kavramlarındaki düzeylerinin çok düşük, beden düzlemleriyle ilgili kavramları gerçekleştirme düzeylerinin görece daha yüksek olduğu belirlenmiştir. Öğrencilerin beden düzlemleriyle ilişkili kavramları gerçekleştirme düzeylerinin görece daha yüksek olmasının, bebeklik döneminden itibaren özbakım, günlük yaşam becerileri ve öğretim etkinlikleri sırasında beden kavramlarının kullanılmasıyla açıklanabilir. Kavşak, tek yönlü- çift yönlü yol gibi trafik kavramları görsel unsurlara dayalıdır. Bu nedenle kavramların görme engelli kişilere kazandırılması için, dokunsal materyallerle yapılacak öğretimlere ihtiyaç vardır. Araştırma sonucunun, öğretim programlarının geliştirilmesine ve bu konuda alanda yapılacak diğer araştırmalara zemin hazırlayacağı düşünülmektedir. Araştırma ilk, ortaokul düzeyindeki çocuklarla ve bağımsız hareket önkoşul kavramlarıyla sınırlıdır. İleriki araştırmalarda okul öncesi, lise ve üniversite düzeylerindeki kişilerin yönelim ve bağımsız hareket önkoşul kavramlarındaki performanslarını ortaya koyacak çalışmalar yapılabilir. Ayrıca farklı yaş gruplarındaki öğrencilerle, önkoşul kavramlara yönelik öğretim etkinlikleri gerçekleştirileceği düşünülmektedir.

Anahtar Sözcükler: Yönelim ve bağımsız hareket, değerlendirme aracı, trafik kavramları, beden düzlemi kavramları.